

MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS

TO: NATIONAL WEATHER SERVICE (W/OS31)
HYDROMETEOROLOGICAL INFO CENTER
1325 EAST-WEST HIGHWAY, RM 13468
SILVER SPRING, MD 20910

SIGNATURE:
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When no flooding occurs, include miscellaneous river conditions, such as significant rises, record low stages, ice conditions, snow cover, droughts, and hydrologic products issued (WSOM E-41).

An X inside this box indicates that no significant flooding occurred within this Hydrologic Service Area.

Summary

No significant flooding occurred during the month of October. Several rivers exceeded bankfull but did not reach flood stage, and many counties reported minor nuisance flooding due to leaves clogging up storm drains.

Flood Conditions

Monday, October 19th

At 4:09 AM EDT, the area forecast discussion mentioned the potential for significant rainfall on Friday and that the system would need to be monitored closely.
At 5:29 AM EDT, the hazardous weather outlook mentioned there was the potential for heavy rainfall in the Friday to Saturday time frame associated with a strong storm system coming out of the southern Plains. The outlook mentioned the possibility of urban and small stream flood issues.

Thursday, October 22nd

At 4:47 AM EDT, the area forecast discussion mentioned the possibility of one to two inches of rain on Friday across our HSA.

Friday, October 23rd

At 10:36 AM EDT, a flood advisory was issued for Allegan, Kent, Ottawa, and Van Buren Counties until 4:30 PM EDT. A low pressure system brought in an inch to an inch and a half of rainfall over a 24 hour period into the advisory area. The flood advisory was cancelled later that afternoon when local law enforcement indicated the nuisance flooding (minor street flooding due to clogged drains from leaves) had ended.

Sunday, October 25th

At 10:02 AM EDT, a river flood advisory was issued for the Flat River near Smyrna, Michigan, when the river was forecast to go above bankfull late Monday.
At 10:14 PM EDT, a follow up river flood advisory was issued for the Flat River near Smyrna, Michigan.

Monday, October 26th

At 10:31 AM EDT, the river flood advisory for the Flat River near Smyrna, Michigan was cancelled when the river was forecast to crest below bankfull that evening.

Tuesday, October 27th

At 4:16 AM EDT, the area forecast discussion first mentioned the possibility of localized flooding due to heavy rain along and ahead of a cold front on Friday.

Thursday, October 29th

At 6:10 AM EDT, a hazardous weather outlook mentioned the possibility of thunderstorms on Friday with the possibility of flooding of streets and low lying areas. It also mentioned that leaves clogging storm drains could be problematic.

Friday, October 30th

At 4:51 AM EDT, a flood advisory was issued for Montcalm, Ionia, Allegan, Barry, Kalamazoo, Kent, Ottawa, and Van Buren counties until 4:30 PM EDT. Heavy rain showers moved repeatedly from southwest to northeast across the region. Since midnight, around one inch of rain had already fallen in a band stretching from South Haven to Saugatuck and then northeast across the Grand Rapids area. Another inch to locally three inches of rain was possible within the advisory area through noon. The flood advisory mentioned that leaves clogging storm drains would only add to the flooding problems .

At 11:20 AM EDT, a river flood advisory was issued for the Grand River at Ionia, Sycamore Creek at Holt, Flat River near Smyrna, Rogue River near Rockford, and the Kalamazoo River near New Richmond, Michigan, when forecasts indicated the rivers would crest above bankfull.

At 11:31 AM EDT, the flood advisory for Montcalm, Ionia, Allegan, Barry, Kalamazoo, Kent, Ottawa, and Van Buren counties was extended until 4:30 PM EDT Saturday. Localized flooding of roads was reported in Kent, Allegan, and Ottawa counties. The flood advisory also mentioned that area creeks were expected to continue to rise and some localized flooding was expected.

At 3:58 PM EDT, a follow up flood advisory was issued for Montcalm, Ionia, Allegan, Barry, Kalamazoo, Kent, Ottawa, and Van Buren counties. The flood advisory mentioned that rain was continuing across the area and up to another half inch of rain was expected by tonight. The flood advisory mentioned the following roads were flooded: 84th and Ottogan Street east of Holland; 104th Avenue between James Street and Chicago Drive northeast of Holland; Bitternut Drive and James Street in Holland; Barry Street from 72nd Avenue to 76th Avenue between Jenison and Holland; westbound Chicago Drive near 48th Street in Hudsonville; South Division Avenue between 68th Street and 76th Street in Cutlerville; M-20 at Schrader Creek near Mecosta; Alice between 103rd and 104th Avenue in Zeeland, Michigan.

At 10:25 PM EDT, a follow up flood advisory was issued for Montcalm, Ionia, Allegan, Barry, Kalamazoo, Kent, Ottawa, and Van Buren counties. The flood advisory mentioned that the rainfall had diminished significantly across the area, and no additional heavy rain was expected. It also mentioned that many low lying areas across the advisory remain full of water and that streams will remain high through the night before receding on Saturday.

At 10:55 PM EDT, a river flood advisory was issued for the Maple River at Maple Rapids, Little Muskegon River near Morley, and the Chippewa River near Mt. Pleasant, Michigan when forecasts indicated the rivers would rise above bankfull. It also mentioned the river flood advisory continued for the Grand River at Ionia, Sycamore Creek at Holt, Flat River near Smyrna, Rogue River near Rockford, and the Kalamazoo River near New Richmond, Michigan.

Saturday, October 31st

At 10:05 AM EDT, a river flood advisory was issued for the Muskegon River near Croton, Michigan, when the forecast indicated the river would crest above bankfull.

At 11:07 AM EDT, the river flood advisory for the Maple River at Maple Rapids was cancelled when the forecast was updated to crest below bankfull. The river flood advisory continued for Little Muskegon River near Morley, Chippewa River near Mt. Pleasant, Grand River at Ionia, Flat River near Smyrna, Rogue River near Rockford, and the Kalamazoo River near New Richmond, Michigan.

At 11:54 AM EDT, the flood advisory was cancelled for Montcalm, Ionia, Allegan, Barry, Kalamazoo, Kent, Ottawa, and Van Buren counties when local authorities indicated the urban and small stream nuisance flooding had diminished.

At 1:01 PM EDT, the river flood advisory for Sycamore Creek at Holt, Michigan was continued. The river was reported out of its banks and the updated forecast called for the creek to crest two and a half feet below flood stage.

At 9:53 PM EDT, the river flood advisory was cancelled for the Grand River at Ionia, Michigan, when the updated forecast called for the river to crest below bankfull. The river flood advisory continued for the Little Muskegon River near Morley, Chippewa River near Mt. Pleasant, Sycamore Creek at Holt, Grand River at Ionia, Flat River near Smyrna, Rogue River near Rockford, and the Kalamazoo River near New Richmond, Michigan.

Flood Stage Report

No river forecast points exceeded flood stage during the month of October. The following rivers exceeded bankfull:

- Muskegon River near Croton, Michigan
- Sycamore Creek near Holt, Michigan
- Chippewa River near Mt. Pleasant, Michigan
- Flat River near Smyrna, Michigan
- Rogue River near Rockford, Michigan
- Kalamazoo River near New Richmond, Michigan

River Conditions

River levels were significantly above normal across our HSA at the end of October. Significant rainfall (over an inch) occurred near the end of the month over most of our HSA and resulted in higher than normal flows on rivers within our HSA. The end of the month percentage of normal flow for selected rivers is listed below:

| <u>Location</u> | <u>River</u> | <u>% of Normal</u> |
|-----------------|--------------|--------------------|
| Whitehall | White | 184 |
| Evart | Muskegon | 253 |
| Mt. Pleasant | Chippewa | 400 |
| Lansing | Grand | 333 |
| Grand Rapids | Grand | 450 |
| East Lansing | Red Cedar | 333 |
| Hastings | Thornapple | 216 |
| Battle Creek | Battle Creek | 182 |
| Comstock | Kalamazoo | 241 |

General Hydrologic Information

October 2009 will be remembered for below normal temperatures and above normal precipitation over our HSA. The above normal precipitation is illustrated in Figure 1. October precipitation totals at Grand Rapids, Lansing, and Muskegon, Michigan, were 7.64, 4.08, and 6.00 inches, respectively. Precipitation totals for the month at these three sites were 4.84 inches above normal at Grand Rapids, 1.79 inches above normal at Lansing, and 3.20 inches above normal at Muskegon, Michigan. For Grand Rapids, Michigan, it was the second wettest October on record. Yearly precipitation totals were 7.46 inches above normal for Grand Rapids, 8.90 inches above normal for Lansing, and 6.37 inches above normal for Muskegon, Michigan.

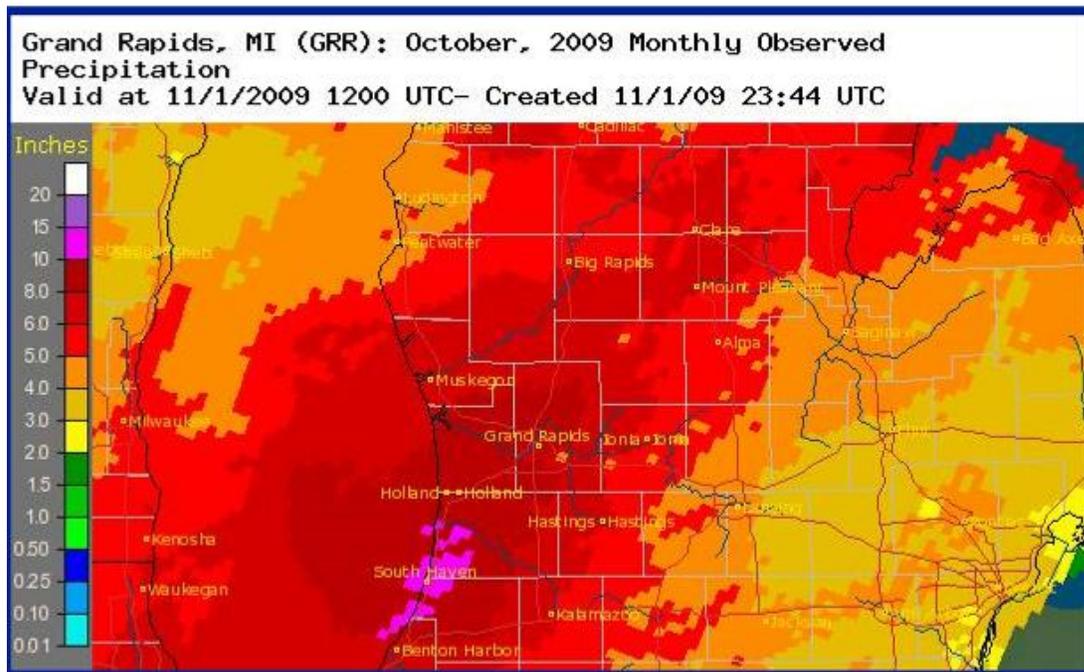


Figure 1. Monthly Observed Precipitation for October 2009

For the month, a trace of snowfall was reported at Grand Rapids and Lansing, and no snowfall was reported at Muskegon, Michigan.

Temperatures for the month of October were below normal at Grand Rapids, Lansing, and Muskegon, with average monthly departures of -1.6, -1.6 and -1.1 degrees Fahrenheit, respectively.

Hydrologic Products issued this month:

- 1 Hydrologic Outlook (ARBESFGRR)
- 7 Areal Flood Advisories (ABRFLSGRR)
- 9 River Flood Advisories (ARBFLSGRR)
- 8 Hydrologic Statements (ARBRVSGRR)
- 31 Hydrologic Summaries (ARBRVAGRR)
- 31 Daily River and Lake Summaries (ARBRVDGRR)